

REMARKS

The amendments to claim 1 replace the open-ended term "comprising" (second instance) with the more limiting term "consisting essentially of" and define the water strain of the polymer as satisfying either of formulas I or II. A similar replacement of the second "comprising" with "consisting essentially of" has been made in independent claims 17 and 18.

Applicants affirm their election of claims 1-37 in response to the requirement for restriction. However, they traverse the requirement and submit that all the claims in the application are directed to a single inventive concept and can be examined together without unduly extending the search.

Claims 1-16 as amended are directed to a data storage medium consisting essentially of a substrate layer and at least one data layer. The substrate layer comprises a polymer having a water strain, at a maximum tilt range, represented by either formula I or formula II, depending on whether water absorption is from one side or both sides respectively. These formulas, being specifically recited in claim 1, are essential parts of the invention and characterize it. Any reference not clearly disclosing at least one species having such a water strain is of no relevance to the invention of claims 1-15.

Claims 17 and 18 are independent claims directed to species of the invention of claim 1. The polymer in each is a polycarbonate, and specific values for the parameters in formula I are required.

Claims 19-37 are directed to a data storage medium comprising a polymeric substrate layer, a data layer and a thin film layer. The thin film layer is defined as comprising a material with substantially the same physical properties as the polymer of the substrate; preferably, it is the same polymer. Such a construction is inherently adapted to absorb water from both sides, and therefore only formula II is relevant. Again, this formula, being specifically recited in claim 19, is an essential part of the invention and characterizes it, and any reference not clearly disclosing at least one species having such a water strain is of no relevance to the invention of claims 19-37.

Claims 1-18 have been rejected under 35 USC 112, first paragraph, for failing to enable embodiments wherein water absorption occurs from both sides. This

rejection has been overcome in claims 1-15 by including formula II, dealing with absorption under those conditions, in the text of the claim. With respect to claims 16 and 17, as previously mentioned these claims are directed to species and in those species, absorption from both sides is not germane.

Claims 19-37 have been rejected under §112, first paragraph, for failing to enable embodiments wherein water absorption occurs from only one side, the thin film layer is a non-polymer or properties other than water absorption are relevant to formula II. This rejection is courteously traversed. As previously mentioned, so long as the terms of the claim are met (i.e., the thin film layer has substantially the same physical properties as the polymer), water absorption from only one side is precluded. This is true whether or not the thin film layer is a polymer. As to properties other than water absorption being relevant to formula II, the Examiner's attention is respectfully directed to paragraphs 0034-0037 of the specification which make it clear that water absorption is the key property. Others are relatively unimportant from the viewpoint of the present invention.

Claims 1-18 have been rejected under 35 USC 102(b) as anticipated by **Research Disclosures 418105** (hereinafter simply "**105**"). This rejection is courteously traversed with respect to the claims as amended. An essential element of the structure described in '**105** is a water-impermeable fluorocarbon film to prevent water from reaching the storage medium. Such a film is not contemplated as part of applicants' invention, and this is now clear from the language of claim 1 which defines the medium as **consisting essentially** of the recited substrate layer and data layer. This language excludes such significantly and independently operative materials as fluorocarbon films.

Claims 19-31 and 34-37 have been rejected under §102(b) as anticipated by, and claims 19-37 under §103(a) as unpatentable over, **Slaten '179**. These rejections are courteously traversed. Referring, as the Examiner does, to Figure 7 of the reference and column 8 of the specification, it will be seen that substrate layer 53 (and also 53', but only one layer of each type will be dealt with herein) is bonded to "information bearing surface" (data layer, in applicants' terminology) 57. Layer 57 is bonded to reflective coating 60, which may be of aluminum, which in turn is bonded to "protective coating" 61. If **Slaten '179** is deemed to anticipate applicants' claims, which of patentee's layers corresponds to applicants' thin film layer: reflective coating 60, or protective coating 61? Either way, applicants' structure is not obtained.

Reflective coating 60, which is "on the data layer" according to applicants' claims, cannot possibly have "substantially the same physical properties" as the substrate layer, since the former may be aluminum while the latter, identified later in the patent as the "base resin" (see, e.g., column 12) is resinous. On the other hand, protective coating 61 is not "on the data layer" since reflective coating 60 is interpolated between the two. In other words, neither structural possibility anticipates applicants' claims.

As for the §103(a) rejection, it will be apparent from the foregoing that even if one of applicants' polymeric materials were used in the **Slaten '179** structure, the result would be neither identical to nor structurally similar to applicants' invention.

Claims 1-6, 8 and 17-18 have been rejected under §103(a) as unpatentable over **Evans et al. '211**. This rejection is courteously traversed, since nothing in this reference suggests applicants' limitation on water strain at a maximum tilt range. The Examiner's allusion to Example 2 of the reference is misplaced, since the only relevant parameter in that example (by way of Table I) is water **absorption**, which is not the same as water strain; see applicants' formula I and paragraph 0030 of their specification. Those skilled in the art could not read into **Evans et al. '211** the water strain requirements of applicants' claims.

Claims 19-37 have been rejected under §102(b) as anticipated by **Nakaki '110**. This rejection is also traversed. This reference discloses a recording layer sandwiched between protective layers, with a polycarbonate substrate layer on one side of the "sandwich" and a "hygroscopic swelling layer", of the same polycarbonate, on the other side. The swelling layer allegedly is swollen by water along with the substrate layer, compensating in such a way that "tilted deformation" is reduced.

Applicants express no opinion on whether the structure disclosed in **Nakaki '110** can, as stated, produce a symmetrical water absorptivity and swelling rate result (column 2, lines 6-15), since it does not matter for the purposes of their invention. The relevant parameter from their viewpoint is **strain**, not absorptivity or swelling rate, and it is simply impossible to produce a symmetrical water strain by a construction of this type. Thus, an essential element of applicants' invention is missing from the **Nakaki '110** disclosure, and applicants submit that there is no evidence that an article fabricated according to that disclosure will have a water strain within their limits.

Claims 19-37 have been rejected under §102(a) as anticipated by **JP 2001-067726**. This rejection is likewise traversed. This '726 publication is somewhat difficult to interpret, by reason of the garbled nature of the computerized translation. For the sake of argument, applicants admit that it does, as the Examiner states, disclose a recording medium with a polycarbonate substrate and a protective layer (of ZnS-SiO₂), and further refers in paragraph 0019 to "Radial Tilt". However, applicants' critical parameter of water strain, which is related more to changes in tilt than to tilt as an absolute, is nowhere identified. It is submitted that there is no evidence that an article fabricated according to '726 will have a water strain within applicants' limits.

Claims 1-18 have been rejected under §102(b) as anticipated by **JP 04-321950**. This rejection is not understood. The key feature provided by this reference appears to be the presence of "minute ruggednesses" on opposite sides. Contrary to the Examiner's description, no language relating to water intrusion or warping has been found in the half-page abstract. Is the Examiner perhaps referring to another abstract or document? In any event, nothing suggesting an article with applicants' water strain property appears to be disclosed.

Claims 19-37 have been rejected under §102(a) as anticipated by **Itoigawa et al. '385**. This rejection is also traversed. As the Examiner states, this patent discloses in Figure 2 a structure in which two recording media are bonded face to face. Such a structure is inherently **symmetrical**, while the structure of applicants' claims 19-37 is inherently **asymmetrical**. This is apart from and in addition to the same problem characteristic of the other §102 references: the lack of any data from which it can be concluded that an article as described will have applicants' water strain property.


Claims 19-37 have been rejected under §102(a) as anticipated by **JP 09-035330**. Like all the other references, this one lacks a suggestion that any article described therein will have applicants' water strain property. In addition, the "protective layer" on the other side of the data layer from the substrate is acrylic, while the only substrate material for which a description has been found is polycarbonate. Clearly, polycarbonate and acrylics do not have "substantially the same physical properties" as required by applicants.

Finally, claims 1-18 have been rejected under §102(b) as anticipated by **JP 04-108002**. This rejection is traversed with respect to the claims as amended, which now

require that the layers **consist essentially** of the recited substrate and data layers. This precludes the presence of other essential layers such as the combination of a moisture permeation protective film and two protective films required by the reference. In addition, of course, the reference does not disclose any article having applicants' water strain property.

It is submitted that in view of the foregoing amendments and arguments, the claims are in condition for allowance.

Respectfully submitted,



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